

Exemption No. 6710B

**UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RENTON, WASHINGTON 98055-4056**

In the matter of the petition of

Schwartz Engineering Company

for an exemption from §§ 21.183(f) and 25.2(b)
of Title 14 Code of Federal Regulations

Regulatory Docket No. 29042

GRANT OF EXEMPTION

By letter dated August 12, 1998, Mr. James A. Dugelby, Manager of Certifications, Schwartz Engineering Co. 11503 Jones Maltsberger, Suite 200, San Antonio, TX, requested resolution of temporary Exemption No. 6710, which was granted on December 18, 1997. That exemption permitted an interior arrangement that included exits further than sixty feet apart, contrary to the requirements of § 25.807(c)(7) (in effect on July 24, 1989) as incorporated by reference in § 25.2(b) of Title 14, Code of Federal Regulations (14 CFR). Exemption 6710A was granted on December 14, 1998, until June 1, 1999 to permit the FAA additional time to address the specific issues associated with this airplane, and to develop a final position. This amendment is issued to provide a final disposition of the petition.

The petitioner requests relief from the following regulation:

Section 25.807(c) (in effect on July 24, 1989) requires that the edge to edge distance between adjacent passenger emergency exits, on each side of the fuselage, be no greater than sixty feet.

Related sections of the Federal Aviation Regulations (FAR):

Section 25.2(b) requires compliance with § 25.807(c)(7) (in effect on July 24, 1989) for any modification to an airplane that was manufactured after October 16, 1987.

Section 21.183(f) requires compliance with § 25.807(c)(7) (in effect on July 24, 1989) for an airplane that was manufactured after October 16, 1987, in order for the airplane to be eligible for a standard certificate of airworthiness.

ANM-99-190-E

The petitioner's supportive information is as follows:

The original petition for exemption, dated September 30, 1997, summarized the petitioner's justification for a grant of exemption. No additional information with respect to justification has been submitted, as the FAA elected to make an interim ruling on the petition, rather than dispose of the petitioner's arguments in the form of a final grant or denial of exemption. Thus, the original petition is still considered valid. Some of the major points are summarized below.

"1. As shown in the attached floor plan, the center area of the aircraft, which would be impacted if the Exit-to-Exit rule were applied in the strictest sense, is a relatively open area approximately 36 feet in length containing only 16 passengers. There is no aisle flow rate complications in this area; the open floor plan permits rapid egress in either or both directions.

"2. The familiarity of the crew and passengers with the specific aircraft and its associated emergency equipment and exits is a significant factor in the safety of this operation.

"3. It is our opinion that even with the deactivation of the two exits noted above and the corresponding distance between exits resulting therefrom, the remaining emergency exits, distances, aisle flow rate capabilities, and the total number of passengers involved will result in, at a very minimum, an equivalent level of safety, if not an increased level of safety.

"IN THE PUBLIC INTEREST - The approval of this Petition for Exemption would demonstrate the FAA's willingness to deal with the issues involved with this Exemption, and would be in the Public Interest for the following reasons:

"1. There is no degradation of safety involved with this request and therefore no detrimental impact to the public at large; and

"2. Given the proliferation of Executive Configured Transport Category Aircraft currently taking place and anticipated in the near future, this type of exemption will enable US manufacturers of transport category aircraft to effectively compete in this expanding market; and

"3. Additional sales of US manufactured transport aircraft outside the traditional airline market can only serve to increase profitability of US airframe manufacturers, giving greater job stability to the workers employed by those manufacturers; and

"4. Greater stability of a work force as significant as the US aircraft manufacturers represent can only result in additional fuel to stabilize the economy of the US due to the normal household activity associated with stable workers; and

"5. Stability and improved financial performance of the US airframe manufacturers translates into increased orders and stability in numerous other supporting manufacturing organizations; and

“6. Increased sales of these executive configured transport aircraft will ultimately result in some portion of those aircraft being completed at US owned or operated Aircraft Completion Facilities, providing improved financial performance and work force stability for those organizations as well; and

“7. Improved financial performance of US owned or operated corporations, and increased work force stability translates into continued and improved tax revenues for all governmental organizations involved; and

“8. Improved financial performance allows US corporations to continue to invest in new R & D research which will allow the US to maintain or improve its competitive position in the world economy; and

“9. A large number of these types of sales can be predicted to be to ‘offshore’ clients, improving the US Balance of Trade Deficit significantly.”

The FAA determined that publication would not delay processing of this petition and therefore a summary of the petitioner's request for exemption was published in the Federal Register on March 19, 1999 (64 FR 13628). No comments were received.

The FAA's analysis/summary is as follows:

As noted in the temporary grant of exemption (Exemption No. 6710), the FAA is concerned that granting an exemption such as this might set a significant precedent and affect future interpretations of this regulation. In order to properly address this issue, the FAA has been reviewing the background of the regulation and its relevance to private use operations. The FAA is considering this requirement as part of a larger effort concerning private use operations, with the ultimate objective of proposing alternative certification standards, if appropriate. The FAA has not yet resolved all of the issues sufficiently to address the requirement in general; however, for this airplane, appropriate standards can now be stated.

In this case, the exit to exit distances greater than 60 feet are formed by deactivation of one exit of two different pairs of exits. The resulting configuration is more difficult to characterize, in terms of compensating features and interior arrangement considerations, than deactivation of a single exit or deactivation of exit pairs.

Amendment 25-67 was adopted in order to establish quantitative limits on the distance that could exist between passenger exits, and to address what appeared to be a trend of increasing distance between exits. As noted in the petitioner's supporting information,

the FAA intended that the quantitative limit could be replaced with a performance standard at some point in the future. However, no such performance standard has been forthcoming.

One of the reasons that no performance standard has been developed is that the issue of distance between exits is complex. As stated in the preamble to the regulation, a simple evacuation demonstration does not address the potential concerns arising from excessive distance between exits. Issues such as disruption of interior features, debris in the aisle, or failure of another exit are not addressed in evacuation demonstrations. These issues are magnified the greater the distance between exits, and are not necessarily only related to high density seating arrangements. Therefore, the outcome of the 90 second evacuation demonstration in accordance with 14 CFR § 25.803 is not relevant to the disposition of the petition. Similarly, the provisions cited by the petitioner relating to exit deactivation and alternate exit configurations are limited to those particular aspects of the requirements, but do not, in any way, relieve the requirement for adjacent exits to be within sixty feet of each other.

That is, the further the exits are apart, the higher the probability that an *individual* will not be able to get from one exit area to another in actual accident. In an evacuation demonstration, the time it takes an individual to get from one part of the cabin to another is primarily related to the number of passengers between that person and the area he or she is trying to reach. When the cabin is relatively empty, these times are very short; this may not be the case in an actual accident, where the scenario is much less predictable. Therefore, contrary to the argument put forth by the petitioner, the fact that the seating arrangement for this airplane is of low density is not, in and of itself, sufficient justification for granting an exemption.

In assessing the specific arrangement for this airplane, the FAA has considered various conditions of inoperative exits. The proposed design results in greater than sixty feet between exits on both sides of the fuselage. However, since there is a different exit deactivated on each side, the resulting arrangement does have exits within sixty feet of each other along the fuselage, if each side is not considered separately. The regulation requires each side of the airplane to be considered separately however, so this factor alone is not sufficient basis for an exemption.

As noted by the petitioner, there are two main differences between this airplane and a typical Boeing Model 757. First, the airplane in question is not to be operated in commercial service. It is intended for private use, and not for carriage of persons for hire. Second, the passenger capacity permitted by the available exits far exceeds the actual number of seats on the airplane.

For the first consideration, the FAA acknowledges that the persons flying on the airplane will not be fare-paying passengers, and therefore might not expect an equivalent level of safety to that afforded in commercial operation. Such passengers must be afforded an

adequate level of safety however, so the status of the passengers is not entirely relevant to determine whether an exemption should be granted. In addition, because the Boeing Model 757 is typically used in commercial operation some passengers *may* expect that the level of safety is the same.

Regarding the second point, as noted above, the number of passengers is not the paramount concern when addressing the distance between exits, although it is relevant in determining the type and number of exits required. It is this point that the FAA has considered further in making its determination.

The FAA has previously approved interior arrangements for mixed cargo/passenger airplanes incorporating a single pair of Type I exits for up to 34 passengers. These approvals were done via an exemption, since the regulations did not address that specific exit arrangement. Therefore, it is reasonable to assume that this airplane would be eligible for 34 passengers with only the aft pair of exits active. Such an approval might restrict the location of seats to the aft portion of the airplane, but would likely be acceptable. The remaining exit pairs could be deactivated. In this case, the airplane arrangement incorporates provisions for 41 passengers. The majority of these passengers are seated toward the rear of the airplane, although some passengers are seated in the area between the deactivated exits. Since one exit from the number 2 exit pair and one exit from the number 3 exit pair are deactivated, the only fully qualified exit pairs are the number 1 and 4 doors. If the forward cabin were treated similarly to the aft cabin, it too could be approved for carriage of up to 34 passengers with only the forward doors active. An equivalent restriction on location of seats would probably be applied.

In this case, both conditions actually exist on the same airplane, with the addition of active exits at the door 2 right, and door 3 left positions. When viewed from this perspective, the petitioner is requesting 7 additional passengers over what could be approved for a single pair of Type I exits, and providing 4 additional Type I exits (one exit pair, and two single Type I exits.) While this is not necessarily a direct substitute for limiting the distance between exits, the FAA has considered the overall impact on safety if the petitioner were to reduce the passenger capacity by 7, and deactivate 4 additional exits. This would not be a desirable outcome, and the FAA has determined that, in this case, the overall level of safety is improved by retaining the exit configuration proposed, at the passenger capacity proposed. Therefore, with limitations as noted, the FAA is granting the exemption as requested.

Since the deactivated exits are not from the same pair, there is actually a better longitudinal distribution of exits, than were both exits of a pair to be deactivated. All of the passenger seats are within 30 feet of an exit on one side of the airplane, and no more than 40 feet on the other side, even with the exits deactivated. It should be noted that, while the regulations specify exit to exit distance, they do not limit the distance between passenger seats and exits. As discussed above, the total passenger capacity is quite low

relative to the number of available exits, so there are compensating factors in that regard. The FAA considers that passenger capacity and location of passenger seats should be limited when the exit to exit distances required in the rule are exceeded. In this case, the interior arrangement provides adequate limitation, and will require amendment to this exemption if the distribution of passengers changes.

In consideration of the foregoing, I find that a grant of exemption is in the public interest and will not significantly affect the level of safety provided by the regulations. Therefore, pursuant to the authority contained in 49 U.S.C. §§ 40113 and 44701, delegated to me by the Administrator (14 CFR § 11.53), Schwartz Engineering Company is hereby granted an exemption from the requirements of §§ 21.183(f) and 25.2(b) to the extent necessary to permit type and airworthiness certification of a Boeing Model 757-200 airplane with adjacent exits further than 60 feet apart. This approval is subject to the following provisions:

1. This exemption does not apply to airplanes operated for hire or engaged in common carriage.
2. Passenger capacity cannot exceed 41.
3. Changes to the interior arrangement that result in a redistribution of passenger seats within the cabin require coordination with the Transport Airplane Directorate.
4. This exemption applies to greater than 60 foot exit to exit distances created by deactivation of the number 2 right and number 3 left exits.

Issued in Renton, Washington, on April 29, 1999.

/s/ John J. Hickey
John J. Hickey
Acting Manager
Transport Airplane Directorate
Aircraft Certification Service, ANM-100